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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/733,136	12/11/2003	Yiliang Wu	D/A3401	7393

25453 7590 09/13/2005

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EXAMINER

TALBOT, BRIAN K

ART UNIT	PAPER NUMBER
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1762

DATE MAILED: 09/13/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/733,136

Applicant(s)

WU ET AL.

Examiner

Brian K. Talbot

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 01 July 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-25 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-25 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |                                                                                         |                                                                             |
|-----------------------------------------------------------------------------------------|-----------------------------------------------------------------------------|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                        | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. _____                                                |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____                                                             | 6) <input type="checkbox"/> Other: _____                                    |

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1. Claims 1-25 remain in the application with claims 26-29 being canceled.
2. In light of the amendment filed 7/1/05, the 35 USC 112 rejection has been withdrawn. The Declaration under CFR 1.131 has been considered. In addition, the 35 USC 102 rejections separately over Schulz et al. (6,126,740) and Huang et al. "Plastic-Compatible Low Resistance Printable Gold Nanoparticle Conductors for Flexible Electronics" have been withdrawn. The 35 USC 103 rejection has been withdrawn.

The following rejections have been maintained or instituted as a result of the amendments.

***Claim Rejections - 35 USC § 102***

Claims 1-7,10-18 and 24-25 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Griffith et al. (6,348,295).

Griffith et al. (6,348,295) teaches method for manufacturing electronic elements by thin-film forming methods. Colloidal suspension of nanoparticles that exhibit electrical characteristics. The nanoparticles are surrounded by an insulative shell that may be removed by therefrom by application of energy including heating while the nanoparticles are fused (abstract). The layer may be a continuous film or a desired pattern. The size of the nanoparticles range from 1nm-999nm and may be conductive or semiconductive (col. 3, lines 10-20). The capping groups include amines thiols, pyridine, etc. (col. 3, lines 40-60). Griffith et al. (6,348,295) teaches substrates as flexible plastics (col. 1, lines 43-46).

*Claim Rejections - 35 USC § 103*

3. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 8,9 and 19-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Griffith et al. (6,348,295).

Features described above are incorporated here.

Griffith et al. (6,348,295) fails to teach nanoparticles being metal composites, heating temperatures of less than 250°C and the conductivity of the layer.

While the Examiner acknowledges this fact, Griffith et al. (6,348,295) does teach heating by lasers to remove the capping layer and fuse the nanoparticles to form a conductive layer. It is the Examiner's position that one skilled in the art at the time the invention was made would have had a reasonable expectation of achieving similar results regardless of the heating process utilized as long as the capping layer is decomposed and the nanoparticles are fused to form the conductive layer. Regarding the nanoparticles being metal composites v. metals and the conductivity, it is the Examiner's position that this would be a design choice of one practicing in

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the art and depends upon the end product desired and therefore is deemed as an obvious modification of the art. Furthermore, one skilled in the art would have had a reasonable expectation of achieving similar results with either nanoparticle or conductivity desired.

***Response to Amendment***

4. Applicant's arguments with respect to claims 1-25 have been considered but are moot in view of the new ground(s) of rejection.

Applicant argued that Griffith et al. teaches applying an insulative composition and not a semiconductive layer.

The Examiner agrees in part. While the Examiner acknowledges this fact, the Examiner contends that Griffith et al. teaches a "semiconductive" composition since the compositions both include metal nanoparticles and similar stabilizers. If Applicant disagrees, Applicant is invited to supply reasonings to support why two similar composition both wouldn't be or couldn't be construed as being of the same "conductive nature".

5. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO**

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MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brian K. Talbot whose telephone number is (571) 272-1428. The examiner can normally be reached on Monday-Friday 6AM-3PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy H. Meeks can be reached on (571) 272-1423. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in black ink, appearing to read "B K Talbot", followed by the date "9/8/05".

Brian K Talbot  
Primary Examiner  
Art Unit 1762

BKT